GARDEN AND FOREST.

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The Obliteration of Public Parks.

THE consolidation of three great libraries of this city has revived the project of erecting a monumental building to contain them in Bryant Park, where the reservoir now stands. Whether the reservoir ought to remain where it is or be taken down depends, of course, on its usefulness. It ought to stand as long as it is needed for the water-supply of the lower part of the city, and while it serves this purpose it will continue to be a dignified structure with a distinct æsthetic value. If, on the other hand, it is of no real use, it should be torn down, for, however well proportioned its lines, a mass of stone like this can have no real beauty unless it means something. If its removal is once determined, arguments for erecting the library on its foundations are something like these: It is the duty of the city to erect such a building somewhere; the location is central and accessible; the city will have to pay nothing for the land; no park space will be curtailed, because the library will occupy fewer square feet than the reservoir does, and Bryant Park, which adjoins it, will be enlarged rather than encroached upon.

On the other hand it is argued by a large and influential class of citizens, some of them trustees of the consolidated libraries, that if the city acquires a block of open ground it should by all means retain it for park purposes. Under a mandatory law the proper officers of the city have within a few weeks condemned two areas larger than that covered by the reservoir, one on each side of Broadway in thickly settled districts, and they will soon begin to tear down the buildings now occupying this land and convert it into parks. This has already been done at Mulberry Bend. Another block will be condemned within a year, and the city is authorized by law to spend a million dollars per annum for this purpose. It would seem, therefore, a singular inconsistency to continue the purchase of park land in the heart of the city every year and then to cover up park space which is already owned by the city.

At a recent public meeting in behalf of free libraries, Mr. Andrew Carnegie asserted that he would never advocate the surrender of a foot of park land for any other purpose than for a library of the particular kind which he favored. And this is precisely what makes these repeated attacks upon public parks so dangerous. The reasons for each proposed infringement seem overwhelming to the promoters of this particular movement, and in general these are projects which in themselves are highly praiseworthy. Rapid transit was a crying need, and therefore the city gave a railroad corporation permission to invade the Battery and to make a blackened ruin of a large portion of that beautiful green. Now equally strenuous advocates are asking for the confiscation of a still greater portion of this park for a loop for the same railroad. When the city wished to give land for a great federal building a large portion of City Hall Park was sacrificed in the same way, another piece was covered over by the Tweed Court House, which also was called a public necessity, and now, "for this purpose only," some friends of this library wish to cover up another possible park. The trouble is that next year there will be other reasons quite as cogent for using some other park for some other purpose. Mr. Carnegie would be willing to give a park for a library, but for nothing else. There are other people who hold that the city owes a debt of gratitude to the Academy of Design which it can only liquidate by giving this institution a building place in one of the parks. In the name of charity another association may soon demand park room for a hospital, and even now some enterprising citizens are asking for a section of Central Park to be devoted to a permanent exhibition for the glory of the metropolis.

The only safe rule is to refuse absolutely to divert a single foot of park space from its legitimate use. If the city can afford to give any of its public land it can still better afford to give money. Why is it not wiser to give the library enough to buy the land it needs than it is to give away park space and then pay a million dollars for a park of the same size somewhere else? If the reservoir is torn down, this will be the only open space along Fifth Avenue from Twenty-third Street to Central Park, and every foot of the land is needed for a pleasure-ground. The policy of demolishing solid blocks of buildings to secure open spaces shows that the people have begun to realize that these are essential to their health and comfort. Having learned this, they should be educated to consider every encroachment upon the park space of the city as an invasion of their rights, which they should be prepared to resent as they would resent the destruction of any other public property.

We have received a circular from the Royal Horticultural Society, London, in which special prizes are offered for dessert apples and pears. These are called the Veitch Prizes for Flavor, and they are offered at every fruit and flower meeting of the society for the coming year, with a first and second prize for the best-flavored apple and a first and second prize for the best-flavored pear. Six fruits of each variety must be shown, and the judges are at liberty to cut any three of them. The exhibitor must guarantee that the fruit exhibited has been grown entirely out-of-doors, and he must state on the name-card whether it was grown on a wall, bush or standard, together with the aspect of the tree and its geographical location, the nature of the soil in which it stands, and when he knows it, the stock on which the scion was grafted. The fruit is judged by points, twelve being the maximum, and these points are distributed in the following proportion: For flavor, six; for quality, three; for appearance, two, and for size, one. It is explained that "quality" is intended to mean the degree of smoothness or meltingness of the flesh (the absence of grit), or in the case of early apples, crispness and juiciness of the flesh may be considered. Quality, therefore, refers mainly to the texture of the flesh. Appearance, of course, includes color and beauty of form; but size, which counts only one-twelfth in the estimate, does not mean that the largest fruit receives the highest marking. There is a type size which invests the fruit with its greatest value for table use, and this is counted perfection. Enormous specimens are not preferred, since beyond a certain point size is a defect in dessert fruits.

We have seen oranges in Florida judged somewhat in this strict fashion, but certainly it is not common in American exhibitions to lay such a stress on flavor and quality as is indicated in this schedule. Every one will admit that in our exhibitions great size and showy appearance count for more than they deserve. For dessert fruit, a beautiful appearance is certainly an advantage; but, after all, quality, if we use the word to include flavor, ought to be the controlling element of its value. In our home market it is true that a beautiful apple or pear will find a readier sale than one which is less attractive in appearance, although it may be better in quality. We apprehend that this condition of affairs prevails to some extent in England, and yet these prizes would seem to indicate that English horticulturists lay more stress on quality than we do here. If it is true that the English market demands high quality and that it will demand it more urgently in the future, it is worth while to inquire how long it will be profitable to ship Ben Davis apples to Great Britain. This variety has keeping qualities and appearance, and the trees are very productive, but it is inferior in flavor to many other sorts, and it is well for those who are raising apples for export to consider whether more attention should not be given to the quality of the fruit. No doubt, the time is coming when quality will count for more at home than it has done, and the growers who select varieties for the good texture and high flavor of their fruit will probably make no mistake, even for the home market.

Thrinax in Florida.

IN 1875 Dr. A. W. Chapman found growing on the Florida keys one of the West Indian Thatch Palms, Thrinax parviflora, Swartz, a tree twenty or thirty feet high, as it grows in Florida, with a slender stem not more than five inches thick, orbicular leaves three or four feet in diameter, bright green above and pale below, and a short slender-branched spadix with coriaceous sheaths pubescent above the middle and often ciliate on the margins at the apex. The flowers open in the autumn and are raised on stout spreading pedicels; the perianth is obscurely six-lobed; the six or nine stamens are composed of slender filaments and introrse anthers, and the large funnel-formed stigma is oblique at the apex. The fruit, which ripens in the spring, is globose, black, a quarter of an inch in diameter, with thin dry flesh closely investing a membranaceous endocarp. The seed is tawny brown and marked by deep vertical furrows caused by the enfolding of the seed-coat into the ruminate albumen. The pedicellate flowers, the thin dark flesh of the fruit and the grooved seeds with ruminate albumen are typical of Thrinax as the genus was first described, and plants with these characters are now grouped together in a section, Euthrinax.

In 1879 Mr. A. H. Curtiss found on No Name and Boca Chica keys another Thrinax which has been referred to Thrinax argentea, Desfontaines, but it now turns out to belong to another section of the genus (Porothrinax), and appears to be undescribed. In Porothrinax the flowers are nearly sessile; the fruit is yellowish brown, with a crustaceous pericarp, and the seed is dark brown and lustrous, without grooves, much depressed at the base, and the uniform albumen is penetrated by a deep broad basal cavity. The size of the fruits suggests the name of Thrinax microcarpa* for this species. It is a tree rarely more than thirty feet in height, with a trunk eight or ten inches in diameter covered with smooth pale blue rind, flowering in the spring and ripening its fruit late in the autumn. The leaves are from two to three feet across and split to below the middle or near the base of the leaf almost to the rachis into divisions which are an inch wide at the middle of the leaf, and rather less than a quarter of an inch wide at its base. Thrinax microcarpa grows on dry coral soil on No Name Key, Bahia Hunda Key and the shores of Sugar Loaf Sound, Florida.

On the Marquesas keys and on some of the small keys east of Key West there is another Euthrinax whose flowers are still unknown. It is a low tree with a short thick trunk raised above the surface of the ground by a cluster of stout roots, large orbicular leaves with blades longer than the petioles, and fruit which differs from that of any of the described species of Thrinax by the thickness of the fleshy succulent pericarp. Portions of a leaf and a few fruits of another Porothrinax, to be distinguished by its much larger fruit, were collected by Dr. A. P. Garber at Cape Sable in October, 1879, and are preserved in the Gray Herbarium.

The flowers, fruits and leaves of these two trees, with information as to their distribution, size and uses, are specially desired. *C. S. S.*

* Thrinax (Porothrinax) microcarpa, Sargent, n. sp. Flowers solitary, ebracteolate, articulate on broad disk-like pedicels; perianth cupular, white, six-lobed, the lobes broadly ovate, acute, half as long as the ovary; stamens six, inserted on the base of the perianth; filaments broad and flat, slightly united below, slender and terete above, exserted; anthers oblong, emarginate, attached on the back, versatile, reflexed and extrorse at maturity; ovary ovate, sessile, one-celled, orange-colored, gradually narrowed into a short stout style dilated into a broad funnel-formed truncate stigma; ovule solitary, basalar, erect. Fruit pisiform, one-eighth of an inch in diameter, tawny brown, short-stalked, bearing at its base the enlarged persistent perianth of the flower, tipped with the remnants of the style; pericarp crustaceous, of two coats. Seed subglobose, depressed at the base; raphe obscure; hilum basal, pale, conspicuous; testa membranaceous, bright chestnut-brown. Embryo apical in uniform albumen penetrated by a broad deep basal cavity. A slender tree; twenty to thirty feet; leaves terminal, orbicular, coriaceous, pale green above, silvery white below, more or less coated while young with hoary tomentum, especially on the lower surface, plicately multifid, the divisions induplicate, with thickened ribs and margins; rachis short, slightly convex, gradually narrowed and rounded at the apex; ligula orbicular, thick, concave, lined with hoary tomentum; petioles slender, flexible, biconvex, unarmed; vagina elongated, light brown, the fibres slender. Spadix elongated, interfoliar, compound; primary branches short, slender, compressed, erect and spreading; secondary branches flower-bearing, slender, pendulous; spathes coriaceous, elongated, acute, deeply divided at the apex, tomentose above the middle; bracts acute, scarious, caducous.
No Name and Boca Chica keys, Florida, A. H. Curtiss, 1879.

The Tannin Value of Some North American Trees.

TANNIN is found in the bark of nearly all trees, yet little attention is paid to the economic possibilities of this constituent. When timber is cut for lumber the bark is usually wasted.

There appears to be no record indicating the amount of tannin in many of our native trees. No doubt, all of them have been tried at various times in the tanning industry, and the barks of a few of them are used at the present time. The following list of results recently obtained will indicate in a certain degree the value of a number of barks, but, as nearly all of them were collected during autumn or winter, the percentages of tannin given probably indicate the minimum amount contained therein:

Barks.	Locality.	Moisture.	Ash in absolutely dry bark.	Tannin in absolutely dry bark.
Taxus Canadensis	Pennsylv'nia	10.80	5.64	20.46
" baccata.....	Bengal, India	14.38	6.19	22.83
Libocedrus decurrens.	Oregon.....	6.17	2.24	7.14
Thuya occidentalis....	Philadelphia.	5.61	6.46	6.13
" gigantea.....	"	6.93	6.10	8.16
Cupressus thyoides...	New Jersey..	34.75	2.88	4.44
Juniperus Virginiana..	Philadelphia.	8.64	6.30	7.30
" Californica.	California...	5.57	9.23	8.10
" occidentalis	Oregon.....	7.72	5.60	5.17
" communis..	Philadelphia.	5.95	6.49	5.66
Taxodium distichum..	Alabama....	6.61	3.88	4.28
Sequoia sempervirens.	California...	7.99	0.64	1.63
" gigantea	"	6.45	0.37	2.77

Taxus baccata can hardly be considered a native tree, but the foregoing results are given for comparison, and they indicate a close relationship in the constituents of the two species, although growing in widely different parts of the globe. The amount of tannin found in these specimens indicates that the bark of Taxus would make an efficient tannin material.

Libocedrus, Thuya occidentalis and gigantea and all the Junipers contain sufficient tannin to make them valuable in the absence of richer material. Taxodium and Cupressus under some circumstances would also be valuable. The column headed "locality" in the foregoing chart indicates the place where these particular specimens were collected, and not in every case the place where the trees are native, for it was necessary to get a few of the samples from nursery stock near Philadelphia.

My thanks are due to Miss Alice Eastwood, of San Francisco,

California; Mr. A. E. Wild, Bengal, India; Mr. E. I. Applegate, Klamath Falls, Oregon, and Dr. Charles Mohr, Mobile, Alabama, for specimens kindly furnished by them.

College of Pharmacy, Philadelphia, Pa. *Henry Trimble.*

Grape-fruit and Shaddocks.

DURING my recent visit to New York I was much interested to notice the considerable demand that existed there for grape-fruit,* from the West Indies. It appears to be very strongly recommended by the medical faculty for its refreshing and tonic properties, and, in consequence, the use of it has become an important feature in the diet in American cities. The fruit I saw in New York called grape-fruit consisted of various sorts and qualities, and there is little doubt that much confusion exists as to what is really grape-fruit as distinct from the allied Citrus fruits passing under such names as Pumelow,† Shaddock, Forbidden-fruit, Paradise-fruit and others. The chief characteristics of all these fruits distinguishing them from the different varieties of the Orange are associated with the size and color. They are all, or nearly all, larger than the largest orange, and they are uniformly of a pale yellow color. In texture the rind may be smooth or even polished. It is seldom rough, nearly always firm and not very thick.

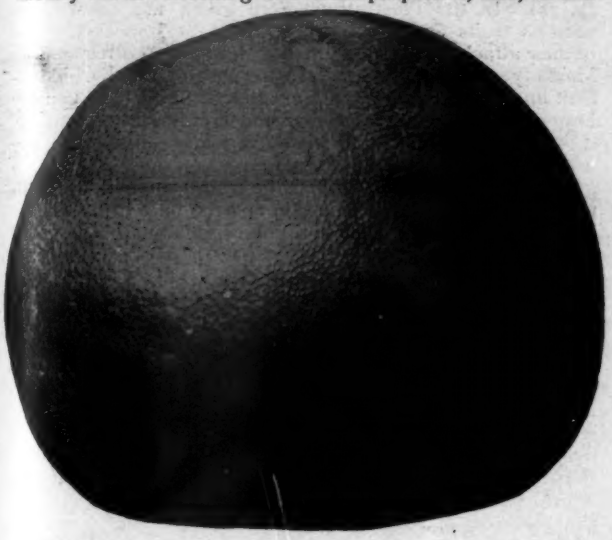


Fig. 23.—Pumelow or Shaddock, globular fruit. Diameter, 6 inches; weight, 49 ounces; flesh pink, with good flavor.

Fig. 24.—Pumelow or Shaddock, pear-shaped fruit. Diameter, 5 inches; length, 6 inches; weight, 32 ounces; flesh pinkish, flavor fairly good.

Fig. 25.—Grape-fruit, as sold in New York. Diameter, 5 inches; weight, 31 ounces; juicy, thin-skinned, excellent flavor.

The pulp is pale yellow or greenish white, sometimes pink or crimson; the vesicles of the pulp (juice bags) are more distinct than in the orange; very juicy, somewhat sweetish, with a distinct, but agreeable, bitter flavor. The pith surrounding the segments possesses more of the bitter than the pulp, but is less agreeable, and on that account is never eaten. In shape these fruits vary a good deal. Some are quite globular, others somewhat flattened at the top and tapering below, forming a pear-shaped body. Even in the globular fruits the top is more or less flattened. There are none, I believe, pointed at both ends.

Having indicated the general characters of this class of Citrus fruits I may venture on a brief sketch of their origin and history. It is agreed by all authorities that these fruits are quite distinct from the other groups of the Orange family, such as the true Oranges and the Citrons. They have, therefore, been kept apart and ranged under the giant Citrus, Citrus decumana. In this species the tree is twelve to eighteen feet high, with a flat crown and spreading branches, usually with no spines. The leaves are elliptic-rounded at both ends, emarginate (that is, with a notch at the apex) and crenulate (having the edge marked with small depressions); the under side of the leaf is softly hairy, with the wings broad, crenulated as in the leaves and bordered with fine hairs. The flowers are in clusters of from three to nine, large, white and fragrant. The fruit is either globose or pear-shaped, forming many seedling varieties without distinct names. This is supposed to be a native of the islands of the Pacific, whence it had been brought

Fig. 26.—Forbidden-fruit, as sold in New York. Diameter, 3½ inches; 4 inches long; flesh pale pink, skin thick.

* It is so called because the fruits grow in clusters like a bunch of grapes.
† It is invariably spelled Pomelo in the United States.

to southern China, Japan and India. It was introduced to the West Indies, according to Macfadyen, from China by Captain Shaddock, whose name has since been given to it. The term Shaddock may be correctly applied to any of the larger members of the giant Citrus and is equivalent to the French pompelmouse, which is another form of the Dutch pomplemoes. The word Pomelow, so widely used in India and Ceylon, is supposed to be a contraction of "pomum melo," the melon apple. The largest Pumelows in India are said to reach "two feet in circumference and weigh ten to twenty pounds." The best sort, according to Bonavia, is "the thin-skinned red pumelow of the Bombay market." This is of a globose shape, juicy and "of the color of raw beef internally." There are, however, numerous grades in size, some being almost as small as oranges. In India the varieties do not appear to have recognized names. Elsewhere the smaller fruits have been variously called Paradise apples, Forbidden-fruit and Grape-fruit.

As regards the proper classification of the West Indian varieties, I cannot do better than record that put forth by Dr. James Macfadyen, the learned author of the *Flora of Jamaica*, which, however, he never lived to carry into more than one volume and part of another. Referring to the large-fruited sorts, he states: "There are two varieties of Shaddock. In var. A. maliformis the fruit is globose, with the pulp of a pale pink color, approaching to a very light yellow. In var. B. pyriformis the fruit is more or less pear-shaped, and the pulp is of crimson color, more or less intense. The second of these varieties is the more esteemed, being sweet and juicy, and having only in a slight and palatable degree the acridity which abounds in the first. I may remark that I have always found the pear-shaped variety good, whereas it is seldom the case with the round-shaped fruit. There cannot be a doubt but that if budding, as is done in China, were more generally practiced, instead of trusting to propagation by seed, that the fruit would be much improved."

The smaller Pumelows or Shaddocks are ranged by Macfadyen under a distinct species which he calls Citrus Paradisi. The tree is described as thirty feet high, of handsome appearance, with suberect branches and sharp at the apex. The leaves are oval, rounded and smooth on both sides. The flowers have linear petals and the stamens are twenty-five in number. The differences between this and C. decumana appear to consist in the more erect habit of the plant, in the rounded (not emarginate) leaves, and in the linear rounded (not oblong-obtuse) petals. With regard to the fruit he remarks: "There are also two varieties of this species: var. A. pyriformis, Barbadoes Grape-fruit; var. B. maliformis, Forbidden-fruit. The pear-shaped variety, as the Shaddock, possesses most of the sweet principle, and is, on the whole, a preferable fruit." This classification was made by Macfadyen nearly sixty years ago, therefore, long before these fruits were so widely distributed as now in other parts of tropical America. He was so accurate and skillful an observer that, as far as the New World fruits are concerned, we cannot very well improve upon it. It is doubtful whether the small-fruited sorts he places under C. Paradisi really deserves specific rank, but that point does not affect the main question with which we started, namely: What are the differences, if any, existing between the Shaddock and Grape-fruit? In summing up the results of the investigation we may say that all the larger-fruited sorts may be called indifferently either Pumelows or Shaddocks. These are merely the eastern and western names for the same thing, and are perfectly interchangeable. No distinction appears to have ever been made between them. There are two well-marked varieties, one being globose, with the flesh of a pale pink color, and the other pear-shaped, usually with a deep pink or crimson pulp. As regards the small-fruited sorts, these, according to Macfadyen, may be either globose, when they are called Forbidden-fruit, or pear-shaped, when Grape-fruit is the older name. The name Forbidden-fruit (from a fancied connection with the Garden of Eden) is tolerably old in the West Indies. Tussac, in the *Flore des Antilles*, published in 1824, gives a good figure of the typical Shaddock, which he translates into the French *Chadec*. In vol. iii., pp. 73, 74, he states: "J'ai eu occasion d'observer a la Jamaïque, dans le jardin botanique d'East, une espèce de Chadec dont les fruits, qui n'excedent pas en grosseur une belle orange, sont disposés en grappes; les Anglais de la Jamaïque donnent à ce fruit le nom de 'Forbidden-fruit,' fruit defendu, ou smaller shaddock." Later on he refers to the same fruit in the following words: "C'est une assiette de dessert très distinguée et fort saine" (p. 74). In the illustrations here given are shown the various fruits as known in the New York market. The names attached to them do not, however, correspond to Macfadyen's classification. In the case of the Forbidden-fruit and grape-fruit they are exactly reversed. As usually happens when a name has become familiar in commerce, it is eventually applied in a much wider sense than the original one. Thus, the term grape-fruit has become so general that any moderately large fruit, provided the skin is pale yellow, thin and smooth, and the pulp of a delicate flavor, is designated by it. The fruit commonly called grape-fruit in New York is really the Forbidden-fruit of the West Indies. The true grape-fruit is pear-shaped, and, according to Macfadyen, when obtainable at its best, is preferable to the Forbidden-fruit. The fruit shipped from the Bahamas as grape-fruit is usually round, with a polished yellow skin of a silky texture and very heavy. This is probably one of the best of its class, and quite equal to Macfadyen's pear-shaped variety. Next comes some excellent fruit from Jamaica, no doubt that already referred to by Tussac under the name of Forbidden-fruit, a smaller shaddock. According to the New York estimation, this would be almost a typical grape-fruit, supplying "une assiette de dessert très distinguée et fort saine."

Kew. *D. Morris.*

New or Little-known Plants.

Lavatera insularis.

FOUR species of Lavatera have been described from the islands situated off the western coast of North America. L. assurgentiflora was described by Dr. Kellogg from cultivated specimens raised from seed said to have come from the small rocky island lying south of Santa Barbara, known as Anacapa. This species is commonly cultivated in western California as an ornamental plant or as a wind-break. It grows very rapidly and thrives well, but must be protected from cattle and rabbits, which are very fond of it and would soon kill it. Californians of Spanish descent claim that the seed of this species was brought from Europe by the padres and raised by them about the old missions. There is a very similar form in the Mediterranean region, where many species of Lavatera grow. L. assurgentiflora has been found on San Miguel, Santa Rosa and small rocky islets about Santa Catalina Islands.

Another species is known only on Guadaloupe, an island far out in the ocean west of Lower California, and another is peculiar to San Benito, a group of islets nearer the Mexican mainland and north of Cedros Island.

Lavatera insularis (see figure on page 165) is supposed to be a native of the Coronados, small rocky islands belonging to Mexico, situated near the mainland in plain view of San Diego. The distribution of this species must be extremely limited, for, according to Mr. A. W. Anthony, the well-known ornithologist, to whom I am indebted for my information, it grows only in one cañon of the largest island. A great part of the year, from lack of water, it is in a dried-up condition, but cultivated plants well watered bear leaves and flowers throughout the entire year. Plants growing in my garden at San Diego, nearly two years old from seed, are quite attractive in appearance, and seem very different from any of the cultivated Lavateras of California.

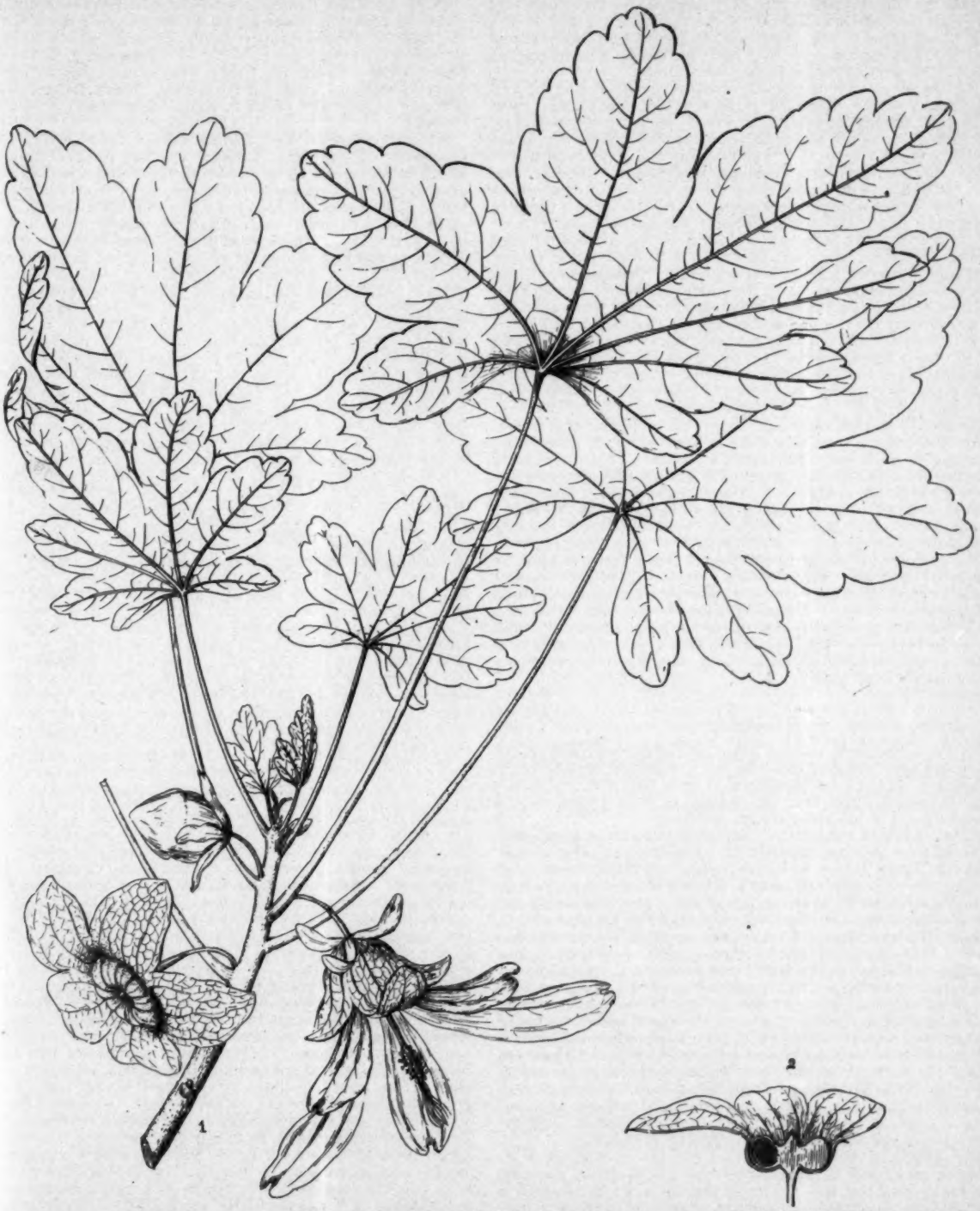
The cultivated plant, already as large or larger than

those of the island, branches from the surface of the ground and grows into a perfectly hemispherical shape about four feet in diameter, and shows a disposition to increase in breadth rather than in height.

The flowers are yellowish white, striped and tipped with purple, and would not be conspicuous even if they were not completely hidden by the leaves. Although full of flowers and fruit, they are completely concealed by the almost unbroken hemispherical covering of soft green leaves.

T. S. Brandegee.

San Diego, Calif.



1. A flowering branch, natural size. Fig. 27.—Lavatera insularis.—See page 164. 2. Vertical section of a flower, natural size.

Cultural Department.

The Water Garden.

THE Water Soldiers still lie quietly at the bottom of the tank, but the hardy Nymphæas have suddenly wakened and are unfolding their leaves, though yet their leaf-stalks have not lengthened. Some other hardy aquatic plants need even less encouragement, and Aponogeton, the beautiful and fragrant Cape Pond Weed, has already ventured to float a leaf at the surface. It is, perhaps, not well enough known that hardy Nymphæas are among the most reliably hardy plants, pro-

vided that they are established and have a covering of water, if only a few inches over their crowns.

A few of the species and varieties have been well tested here for several years, being completely frozen in ice each winter without injury. Last winter all the Pond Lilies were left exposed in the shallow water of the tanks and were frozen up for most of the season, and none were at all injured. It seems that the rhizomes of these plants having comparatively large air cells are not injured by the temperature of ice, and this being formed around them is a protection from excessively low temperature. We had, as usual, a temperature under zero several times during the winter.

As it is about time to prepare a water garden it may be well to again call the attention of flower fanciers to this most attractive, fascinating and still novel specialty of gardening. Of course, if one has a natural pond the growing of Nymphæas is too obvious a decoration and too simple an operation to talk about, but in a common every-day dry yard the water garden charms, if only with its unexpectedness, and the modest owner of a few feet of water surface need not envy a broad expanse where the muskrats would probably eat up his good tubers. My first water garden, composed of three Nymphæas in three sunken washtubs, backed and edged with subaquatic plants, was much prettier in effect than anything possessed since in more ambitious tanks which are more practical than æsthetic, and I should advise any one to whom expense was an object to commence the culture tentatively in the same way that I did. Of course, this is a very modest beginning, and the plants do not have much chance to expand, but it is sure to give satisfaction to any one really fond of seeing things grow. It is only with aquatics that one discovers the full effect of warmth and moisture on plant life. Nymphæas are, of course, the first choice for water gardens, and one should be careful not to introduce other plants, especially in large gardens, unless they are tender and will disappear in winter. Hardy aquatic plants have a wonderful capacity for growth and increase, and are very difficult to eradicate if once established. One finds many curious life habits among the water plants, as the Water Soldier, Stratiotes aloides, which will soon rise from the bottom, and, floating at the surface, flower and sink, again to form a colony of young plants spread around the parents in the familiar "hen and chickens" style. There is another plant, interesting to the botanist and biologist, Spirogyia, which is often sent out by the florist with the Nymphæas. This is a great pest in a pond, and new plants should be examined and all traces removed. This appears in dark green threads, which increase so quickly in warmth that it is difficult to eradicate from among other plants.

Elizabeth, N. J. *J. N. Gerard.*

Cannas.

THE freedom with which Cannas can be grown makes them everybody's plants, and it is not uncommon to see them growing thriftily in the backyards of crowded portions of the city. They are effective in every stage of their growth, and a mass of them in bloom is always pleasing.

After a rest of a month our last season's plants were gradually started and kept rather dry until active growth commenced. They began to bloom again in March, and after resting for a couple of weeks during May, which can be brought about partly by withholding water, they will be planted out again and will bloom for the remainder of the season.

Since the production of the Crozy type of Canna this has been the standard by which others have been judged, and nothing better, at least in form, was looked for, although new colors have been expected. These we have had in abundance, but as the type has always been so well defined it has been easy to decide on the merits of a novelty, and no introducer of any standing would risk his reputation by sending out inferior varieties. Now we have a new type, said to be a hybrid between Canna flaccida and the Crozy strain, one of which, Italia, has already been figured and described in Garden and Forest, and another, Austria, has also been noticed as bearing still larger flowers of similar form, pure yellow, with the exception of scarlet pencilings on the centre petals.

The introductions for the year of the Crozy type show an advance principally in larger flowers of symmetrical contour, full, and turned out on all sides of the stem so as to show a vertical face. Collectively, therefore, when best developed, they form a pyramidal spike. In beauty of outline and in the regular arrangement of its flowers, F. R. Pierson, a magnificent crimson with a golden throat, is the best of its type, and it is not likely soon to be excelled. Flamingo approaches it, although the short side spikes give the whole cluster a slightly more rounded appearance. As an element of beauty a head made up in this way is not so attractive as one bold spike. For bedding purposes it will be superior on account of the long time one flower-stem will remain in good bloom. Trilby claims favor as the Orchid Canna, and under glass it is exceedingly beautiful. It is bright yellow, with clearly cut scarlet markings in the centre, and the large flowers have more substance than many of its color.

Pierson's Black Beauty is a seedling from President Carnot. This old variety is conceded by all who have grown it to be the best of all the bronzy-leaved varieties which have also attractive flowers. No doubt, J. D. Cabos and J. C. Vaughan, bronzy-leaved varieties, with handsome salmon-colored flowers, were both derived from this. Black Beauty eclipses them all in the color of its foliage and is equally effective in bloom.

Among yellow-banded Cannas of the Crozy group, Queen Charlotte, of last year, took a leading position. But the specialist has been at work in the mean time, and will introduce Little Billee as an improved seedling from Queen Charlotte. It is dwarfer and said to be superior for massing. Under glass it certainly is a most attractive variety, and, compared with Queen Charlotte, it is slightly deeper in tone. Madame Alphonse Bouvier is another so-called Orchid Canna of singular beauty. The ground-color is scarlet, with an irregular orange band continued into the throat. Souvenir Antonin Crozy remains the best of all the true Crozy type, and it is doubtful if any of this year's introductions will equal it in beauty. Ami Pezeux competes with F. R. Pierson among maroon shades. All through the flower are scattered dots of a deeper hue in the same way as the so-called yellow Cannas are spreckled with red. Madame Rozain is a deeply toned Madame Crozy, with the addition to the characteristic yellow band of a yellow throat, which rather increases its effectiveness. Côte d'Or is described as strikingly effective for bedding, with saffron-colored flowers. It is compact and dwarf.

Among older varieties, Alphonse Bouvier stands at the head. It is not of the ideal form; the terminal spike perversely droops. While flowers continue to expand on this, others take its place later, also spreading out. They continue to open in large effective clusters for a long time. Its lustrous maroon-colored flowers are unsurpassed by any variety known. Another of exactly the same type is Helen Gould, and this is bright amber. It was one of the most striking varieties in a large group here last summer. Although introduced several years ago, Paul Bruant is as yet little known. It is one of the best of crimson-flowering Cannas for pot-culture. On a plant in a ten-inch pot are three well-developed flower-stems carrying good heads of bloom, which would make this an effective decorative plant in any grouping. Florence Vaughan has been a surprise this season as a pot-plant, being the earliest to bloom and the most floriferous of any of the so-called yellow-flowered varieties.

Wellesley, Mass. *T. D. Hatfield.*

Greenhouse Climbers.

VISITING not long ago the greenhouses of the Massachusetts Agricultural College, at Amherst, I was much impressed with the luxuriant display which was made there by well-grown specimens of common climbing plants. They were in every case planted out in the borders, which is, no doubt, the best way of treating climbers, which are, in most cases, impatient of having their roots restricted. There are two large octagonal houses, in addition to a number of others. In one of these Asparagus plumosus is trained up the pillars which support the roof, and is festooned from pillar to pillar with particularly graceful effect. In the other octagonal house a fine plant of Plumbago Capensis occupied one pillar and was covered with its beautiful blue flowers. A handsome Cherokee Rose, a plant often commended and described in Garden and Forest, occupied a considerable portion of this house. Growing with it as a companion plant was a very fine specimen of the climbing Perle des Jardins, which was carrying great numbers of its lovely yellow flowers. Another pillar was occupied by that excellent climber, Jasminum revolutum, with its compound corymbs of bright yellow flowers and dark green pinnate leaves. This is one of the few vines which insect pests do not take to readily. In another house was a large plant of Passiflora princeps, with pendulous racemes of red flowers. P. quadrangularis, var. acubifolia, was also growing in the same house, and, in my opinion, this is the best of all the Passion flowers. The stem, as its name indicates, is four-angled; the alternate leaves are cordate, six to eight inches long and four to five inches wide and mottled with yellow, resembling the Acuba leaves very closely. The flowers are white outside, and of a dull reddish color within, and very

odoriferous. A good plant of Aristolochia Sipho was also showing its usefulness as a greenhouse climber as well as being a hardy one. Cobæa scandens occupied the end of another house and was bearing hundreds of its purple, cup-shaped flowers.

In a house devoted to Cacti and other succulents, was a large specimen of Pereskia aculeata, the Barbadoes Gooseberry, which covered a space of about ten feet by fifteen. Pereskias belong to the Cactus family, but this species is so unlike any of the other members, that, except for the flowers, which are of a creamy white color, one would almost fail to see the connection. It produces true leaves in abundance of a bright green color, and the stem is round and woody.

A good specimen of the noble Cereus triangularis was also doing well in this house. These greenhouses have been built several years, and the climbers have become so well established that they are now displaying the best effect which can be produced by intelligent cultivation, persisted in for a series of years.

Botanic Garden, Northampton, Mass. *Edward J. Canning.*

Ouvirandra fenestralis.

THIS plant has been too long regarded as an aquatic freak difficult to grow and apt to die without any apparent reason. This is not true. Like many other plants, when their peculiarities are understood, the cultivation is simple, and this singular and interesting plant ought to be found in every collection of stove plants, and, of course, no aquatic house is complete without it. It grows in Madagascar on the borders of streams, the leaves being merely a network of vascular tissue resembling lace, or, as its specific name implies, a lattice window. In well-grown plants they are from twelve to eighteen inches long and about one-third as broad, oblong, with an obtuse apex, and spreading out almost horizontally beneath the surface of the water. When young they are light green, but they change to a deeper color as they mature, when the midrib is a bright yellowish green. The plant grows freely at a temperature of from seventy to seventy-five degrees, Fahrenheit, or from a little lower in longer days. During a cold spell, when the temperature is likely to fall below the minimum, warm water can always be added, and the top of the tank covered with shading material, or even paper, to retain the heat. Little shading is needed during the winter, although some may be needed after the first of March. There is no necessity of covering the water with such plants as Azolla or Salvinia, because they grow densely and would hide the plant, even if too much shade, with high temperature, did not weaken its growth, so that the leaves would become drawn, narrow and soft.

The Ouvirandra is not particular as to soil. I have grown it with success in different composts, and it surely will thrive in any mixture consisting of fibrous loam, rotted manure and sand. My preference is to have the soil rather heavy; in fact, the greatest success I have achieved has been with soil like that used for Nymphæas—that is, turfy loam, well-decayed manure and a little sharp sand. Any wooden tub or kerosene barrel cut in two makes a good receptacle, only, of course, this latter should be burned out before it is used. Glass aquariums are well adapted to the cultivation of these plants, and they afford the best opportunity for inspecting them. When the tubs or other receptacles are clean there is no need of changing the water when any scum arises or dust settles upon it. Pure water can be added with a hose to flush the tub, and the plants themselves will keep the water clean as they are good furnishers of oxygen. They do not suffer from insects, and they are no more difficult to grow than the well-known Aponogeton distachyon, with which genus Ouvirandra is now included.

Riverton, N. J. *William Tricker.*

Cyanide of Potassium as an Insecticide in Glass Houses.

AN interesting series of experiments has lately been carried out at the Department of Agriculture, under the direction of Professor Galloway, Chief of the Division of Vegetable Pathology, in the way of checking the ravages of the black-spotted mealy bug, Orthezia insignis. This pest is a native of South America; it was first noticed, I believe, in some greenhouses in the state of New York about five years ago. Since that time it has spread in all directions, and is getting to be quite as troublesome on certain plants as the mealy bug and green fly are on others. It was described at length in a bulletin issued last year by the Hatch Experimental Station. Some time ago Professor Galloway was impressed with the idea that the method in use in Florida and elsewhere, whereby the Orange-trees are fumigated under tents with this cyanide, could, with certain modifications, be utilized in checking the devastations of the Orthezia, and the results, as seen in an exhibition at the propagating-gardens last week, have proved highly satisfactory. A house containing 15,580 cubic feet of space, which is used at present for storing Coleus for bedding purposes, was selected for the work. The Coleus is one of the favorite plants of the pest, although it is frequently found on a number of others, among which are the Chrysanthemum, Lantana and Alternanthera. The plants in the house selected were infested to such an extent that they were considered almost unfit for use this summer. The fumigation of the house took place after seven o'clock in the evening, as the presence of light nullifies to a certain extent the influence of the liberated gas. The ingredients used were three pints of water, the same quantity of sulphuric acid and five and a half pounds of cyanide of potassium; this was divided into three equal parts and placed in three two-gallon jars placed at equal distances along one of the side benches and close to the ventilators; the water was first poured in the jars, then the sulphuric acid, and through the open ventilator from the outside the cyanide was added. In less than two minutes the gas had evidently reached to all parts of the house. Twenty minutes later the ventilators, both top and bottom, were raised from the outside, provision having previously been made for this, as the presence of the gas after that period among the plants is considered hurtful to them. After careful inspection that evening and next morning not a live Orthezia was to be found, and after strong sunshine not a leaf appeared injured; even tender fronds of Adiantum cuneatum were uninjured. The common mealy bug and one or two species of scale insects were also killed.

Botanic Garden, Washington, D. C. *G. W. O.*

Kæmpferia rotunda.—Although a very old and well-known plant, this is usually grown for its foliage, but its exceedingly beautiful flowers are really its greatest charm. The flowers are borne in spring or summer before the leaves, which should be allowed to die down late in fall, and the plants may be kept in a dry state until January or February, when they should be placed in moss in flat pans with the roots but slightly covered. Or they may be planted and grown from year to year in an ordinary light compost and allowed to rest in winter. When brought into a brisk heat the leaves and flowers soon begin to grow. The flowers, not unlike Meadow Saffrons in form and color, are almost sessile, and produced directly from the root in great profusion. They are sweetly fragrant and of a bright rosy red color, or sometimes paler, each one lasting only a day, but succeeded by new ones for a long period. Kæmpferias look best in masses when a number of flowers show at the same time. The leaves when fully developed are about two feet long, erect, broadly lanceolate and narrowed to a broad petiole at the base. The color is a dull olive-green, with one or two brownish longitudinal bands, so that the plant is quite effective even when out of flower.

Eranthis hyemalis.—There is, perhaps, no brighter and hardier spring flower than the little Winter Aconite, which flowers here much later than in Europe. It is a very dwarf perennial with fleshy tuberous roots which produce a couple of peltately divided leaves each and a solitary flower of a bright yellow color early in spring. Eranthis is nearly related to the Hellebores. The flower is about an inch across, with six petal-like sepals and inconspicuous petals and nice little bunches of yellow stamens in the centre. The flowering stem is simple, and has three deeply lobed involucral leaves. It is much used in Europe in rough places among trees and shrubs, especially on sunny southern slopes; unfortunately, it is not always easy to naturalize in such places here. When growing and flowering in masses in early spring the effect is very rich and beautiful. It will grow in any moderately rich garden soil, but prefers one that is light, loamy and well drained.

Adonis vernalis.—This is one of the early spring flowers that ought to brighten every garden, whether large or small, at this time of the year. It is, however, hardly known, and the country homes which should now be gay with flowers have hardly a bud to show that spring has come. Adonis vernalis is not unlike a large Anemone in shape, but the color is a very bright yellow. The flowers are set off by light feathery foliage. The species grows to a height of eight or ten inches and forms masses of foliage and flowers as early as the latter part of March in favored localities. It is a very desirable plant for naturalizing in bare places in shrubberies and among rocks. As it is perfectly hardy, it will generally look out for itself,

once established. It thrives best in a rather moist position where it is partially sheltered from the sun, but will not grow well in too deep shade. It is easily propagated by means of seeds or divisions and requires no special culture.

Newark, N. J. *N. J. R.*

Correspondence.

Buckleya Again.

To the Editor of Garden and Forest:

Sir,—Three years ago, in May, I visited Wolf Creek, a small hamlet consisting of some half-dozen scattered houses, about five miles below Paint Rock, the original locality of Buckleya distichophylla. The post-office is situated at the mouth of a stream of the same name that rises in the high mountains near the North Carolina line, and, after winding among the hills for some seven miles, empties into the French Broad. Here Buckleya was found at several points along the river, from about two miles above to a half-mile below the creek. In only one spot was it found away from the river-bank, and there not more than an eighth of a mile distant. In the locality in question some two or three dozen plants grew on the steep wooded bank of a small pond—half water, half quicksand—among Cherry Birches, two or three Oaks and the Big Laurel, Rhododendron maximum. The presence here of Hemlocks, Tsuga Canadensis, makes it probable that at some not very distant time this colony was also growing on the river-bank, for Hemlocks are almost entirely confined to the banks of the larger watercourses in the Alleghanies. The probability is increased by the fact that only a stretch of low bottom-land intervenes between the pond and the river.

About two miles above Wolf Creek the largest number of individuals found in any one place were discovered on an abrupt rocky bluff overhanging the river. In this sheltered spot there were probably 120 specimens growing under the shade of various large trees, along with Yellow-wood, Cladrastis lutea, and the Sweet shrub, Buettneria fertilis (Calycanthus lævigatus). Between these two stations the plants were scattered along the river—a half-dozen or so here and there—near the water's edge, usually growing with the Sweet-shrub, Leucothoë recurva, Hemlocks and Red Birches. All the specimens found were on the left bank of the river; none were discovered on the right bank. Buckleya is said to have been found on a bluff on Wolf Creek, about half a mile from its mouth, but I did not come across it there.

The largest specimens grew on the bluff two miles up the river, where they attained a height of ten or eleven feet, but the average shrubs are only six or eight feet high, with a stem diameter of about one inch at base. In habit Buckleya is more like a small tree than a shrub. It prefers a rich shaded soil, but sometimes grows in almost pure sand. It is a handsome plant in every part. The foliage is light and graceful. The female flowers, drooping at the ends of short twigs, with their crown of four sepal-like bracts, are much more conspicuous than the small staminate blossoms. The bark, reddish brown in color, with conspicuous lenticels, somewhat resembles that of the Cherry Birch. The wood is white and has a beautiful fine grain. A quantity of the nuts, or rather drupes, were sent to me during the following autumn by Master Harry Allen, who wrote that they are produced in great abundance. The largest ones are nearly an inch long. When dry they are light brown in color and deeply furrowed lengthwise. Although rich in oil, they are not unpleasant to the taste, being quite sweet and with a flavor somewhat like that of filberts. The shrub is well known at Wolf Creek, but has received no more distinctive local name than that of "the bush with queer nuts."

There seems to be no great danger of its immediate extinction. Its occurrence in several different places is one security against this. Then it is usually confined to places rather difficult of access and unfavorable for agricultural purposes. In spite of the apparent disadvantage of a separation of the sexes in so rare a plant, it matures a great quantity of fruit. In May I found numerous vigorous seedlings among the older plants, especially in the two larger colonies. Moreover, it is highly probable that further search along the banks of the French Broad, between Paint Rock and Wolf Creek and below Wolf Creek, may discover other stations. As far down the river as Newport the conditions are very similar to those about Wolf Creek, so that its absence, rather than its presence, there would be surprising. At any rate, it is pleasant to know that this rare and handsome shrub is not quite as near extinction as has been supposed.

Department of Agriculture, Washington, D. C. *T. H. Kearney, Jr.*

Calochortus in Southern California.

To the Editor of Garden and Forest:

Sir,—Calochortus Weedii is found in great abundance about the foot-hills of Passadena, but the plant does not flourish equally well in all places. The finest flowers I have found are on the north-eastern slope of the highest hill near the summit, where another hill to the north cuts off the cold mountain winds. The plants appear in early March among the Sage-brush, where the soil is red and loose, and it may interest your readers to know that the very sturdiest of them come out of the gopher-holes, where the bulbs are at least eighteen inches deep. In some former year a seed chanced to fall into one of these holes, and the dust sifting over it neatly buried it, where, perhaps, it found more moisture than its neighbors nearer the surface. At all events, the plants in gopher-holes grow with unusual vigor and their flowers are exceptionally large and brilliant. The terminal flowers are largest, and they are seen scantily in the early part of April, while the lateral buds follow until the middle and the upper part of the slopes are luxuriantly covered with the white flowers. I have often gathered twenty of them in the space of three square feet, the tallest being on stems three feet long. The seed-cups open by July, when the ground is literally alive with snakes. Few of the seeds reach the ground, however, as the small birds relish them and often pick into the three-cornered capsule before it is ready to open. C. Weedii, with pink flowers, is found on the bench-lands of the Cañon La Cañada, where it may be the color is modified by unusual exposure.

The mauve-colored flowers of Calochortus purpurascens are found in a few places on the bench-lands which look over Arroyo Seco. These are very large, and the yellow pubescence extends from the centre of the flower fully half the length of the petals, making a most beautiful combination of color. These flower later than the ordinary white ones. They are not as tall and less branched. C. claratus bears a beautiful canary-colored flower, and is found on the high hills overlooking the Cahuenga Pass.

Los Angeles, Calif. *Jennie Kruckeberg.*

Recent Publications.

The Evolution of Horticulture in New England. By Daniel Denison Slade. Putnam's Sons, New York and London. 1895.

Dr. Slade's lifelong services to the art of horticulture are gratefully acknowledged by all lovers of the art in this country; and this little book, published just before his death, will be welcomed as a memorial of its author no less than for its own sake. It is somewhat overweighted by its title, for it is an attractive sketch rather than a scientific history of the progress of horticulture in New England since the time when the first colonists landed; but its delightful typographical dress and its simple pretty binding are entirely in accord with its character.

The volume begins with a brief sketch of the history of horticulture in the mother country, and then takes up the main subject from the very outset. It is impressed upon the reader that, in the early seventeenth century, New England was a forest-clad country, as regards its islands no less than its mainland, "the only exceptions to this condition being the salt marshes, the bogs and the higher ranges of mountains." An old chronicler relates that "the salvages are accustomed to set fire to the country in all places where they come and to burn it twice a year—that is, at the spring, and the fall of the leaf. The reason that moves them to do so is because it would otherwise be so overgrown with underweeds that it would be all a coppice wood, and the people would not be able in any wise to pass through the country out of a beaten path. This custom of firing the country is the means to make it passable, and by that means the trees grow here and there, as in our parks, and makes the country very beautiful and commodious." Nevertheless, much of the work of the early settlers was in clearing away the forests which obstructed agriculture and horticulture—how much it is hard for those who know eastern New England now to imagine until they have read many such notices as that which speaks of "a necke of land called Nahant" as being "well wooded with Oakes, Pines and Cedars." Their first

efforts in planting are carefully followed from year to year and from place to place by Dr. Slade, and the quotations from old writers, which show what plants they brought with them from the old country, are not more interesting than those which reveal their estimate of those which they found indigenous in the new. Their optimistic descriptions of the native fruits and berries certainly reveal that determination to look on the bright side of painful new conditions and to make the most of comparatively unattractive novelties which must always mark the successful colonist. Of course, Old World names are so often applied to different New World things that the task of interpretination is not always easy. For example, Wood, writing in 1629, says: "The Hornebound tree is a tough kind of wood, that requires so much paines in riving as is almost incredible, being the best for to make bolles and dishes, not being subject to crack or leak." The tree in question which, Wood explains, grows "with broad speard armes," was probably the Tupelo, the wood of which was used by the Indians for the purposes he notes, and which, along the Massachusetts shore, is still popularly called the Hornbeam. Growing wild, says the same writer, were "Strawberries in abundance, very large ones, some being two inches about: one may gather halfe a bushell in a forenoone. In other seasons there be Gooseberries, Bilberries, Resberries, Treackleberries, Hurtleberries, Currants, which being dryed in the Sunne are little inferior to those that our Grocers sell in England. This land likewise affords Hempe and Flax, some naturally and some planted by the Indians, with Rapes if they bee well managed." The local Walnut-tree, says Wood again, "is something different from the English Wallnut. . . . These trees bear a very good nut, something smaller but nothing inferiour in sweetnesse and goodnesse to the English Nut, having no bitter pill. There is likewise a tree in some parts of the Countrey that beares a nut as bigge as a small peare"—the Butternut. And, he continues, "the White Thorne affords hawes as bigge as an English Cherrie which is esteemed above a Cherrie for his goodnesse and pleasantnesse to the taste." But of the native New England Cherries even Wood could not speak in praise. "The Cherrie trees yeeld great store of Cherries, which grow in clusters like grapes; they be much smaller than our English Cherrie, nothing neare so good if they be not very ripe: they so furre the mouth that the tongue will cleave to the roofe, and the throate wax horse with swallowing those red Bullies, as I may call them, being little better to the taste. English ordering may bring them to be an English Cherrie, but yet they are as wilde as the Indians. But the Plummes of the Country be better for Plummes than the Cherries be for Cherries; they be blacke and yellow, about the bignesse of a Damson, of a reasonable good taste."

But, despite their readiness to be pleased with their new possessions, the settlers were lavish importers of products familiar at home. For example, among the articles ordered to be sent to New England by the Massachusetts Company in 1629, were "Vine-planters, wheat, rye, barley, oats, a hogshead of each in the ear; beans, pease, stones of all sorts of fruits, as peaches, plums, filberts, cherries; pear, apple, quince kernels; pomegranates, woad seed, saffron heads, liquorice seed, madder roots, potatoes, hop-roots, hemp seed, flaxseed, currant plants and madder seeds." It is interesting to trace as far back as this the importation of the Woad-waxen which now so beautifully covers parts of Essex County; but Pomegranates certainly have not acclimatized themselves so well in New England.

More or less extensive orchards were early established. The first is believed to have been that of William Blackstone, to whom, in 1633, were granted "fifty acres . . . near his house in Boston, to enjoy forever." In 1765 this orchard was spoken of as still producing fruit, and its existence at even later dates is recorded. Blackstone himself afterward removed to Reheboth and planted the first orchard within what are now the borders of Rhode Island.

Wood, writing between 1629 and 1633, mentions many fruitful gardens in the regions about Boston, where, in his time, Boston itself was not the largest town. "The greatest Towne in New England," he says, was Dorchester, and a mile away lay "Roxberry, which is a faire and handsome Country-towne, the inhabitants of it being all very rich." And Boston is described as being "two miles North-east from Roxberry," and "although it be neither the greatest nor the richest, yet it is the most noted and frequented, being the Center of the Plantations where the monthly courts are kept. Here likewise dwells the Governour; This place hath very good land, affording rich Corne-fields and fruitful gardens." Brookline is noticed as a place called Muddy River, two miles from Boston, where the inhabitants of that place "for their enlargement have taken to themselves Farm-houses; where is good ground, large timber, and store of Marsh-land and Medow"—a description which is not out-of-date to-day.

In 1632, Conant's Island, in Boston harbor, was granted to Governor Winthrop, and was thereafter called "The Governour's Garden." Josselyn, writing in 1639, reported that he had received from there "half a score very fair Pippins . . . there being not one Apple tree nor Pear planted yet in no part of the Countrey but upon that Island."

But it was not long before the town of Boston was filled with such trees, and Mylne Street (now Summer Street) was especially a street of gardens. The one owned by Gamaliel Wayte was planted in 1692, and long remained famous; and in the eighteenth century this and neighboring towns were well entitled to boast of their horticultural products. Paul Dudley, writing of Roxbury in 1726, said, "Our apples are without doubt as good as those of England and much fairer to look upon, and so are the pears, but we have not got all the sorts. Our peaches do rather excell those of England, and then we have not the trouble or expense of walls for them; for our pear trees are all standards, and I have had in my own garden seven or eight hundred fine peaches of the Rareripes growing at a time on one tree. Our people of late years have run so much upon orchards that in a village near Boston, consisting of about forty families, they made near three thousand barrels of Cyder. This was in the year 1721. And in another town of two hundred families, I am credibly informed, they made near ten thousand barrels."

Many of the fine ornamental gardens laid out in Boston in the eighteenth century were preserved until comparatively recent days—for example, the one attached to the Faneuil mansion, nearly opposite King's Chapel, with which, Dr. Slade relates, he himself was intimately acquainted.

But it is impossible to follow his account of the progress of New England horticulture down to the present day; nor is his book of the sort which lends itself well to the reviewer's ordinary process of condensation and exposition. We have preferred not to attempt this, but, instead, to quote a few paragraphs from its earlier pages, which may suggest to our readers the interest of all the others.

As he reaches more recent times, Dr. Slade speaks of the great good done by the Massachusetts Horticultural Society, founded in 1829, and notices many of the charming suburban country places for which the environs of Boston have long been famous—places which, alas, must for the greater part soon perish before the steady advance of the city's streets. Nor does the volume lack some pages devoted to the consideration of gardening as a fine art—as an art of arranging surfaces of ground so that they may please the artistic sense—which are instructive as well as agreeable reading.

Notes.

One of the prettiest early yellow flowers is that of Iris orchioides, which was introduced into cultivation by Dr. Regel from the mountains of Turkestan. It is perfectly hardy and flowers with the early Daffodils. These flowers are not very large, but they are a pure rich yellow, with small blotches of olive or purple on the fall. The leaves at the time of flow-

ering are hardly six inches long, but the flower-stems are a foot or more in length, and each one bears in succession three to six flowers. The bulbs increase rapidly, and a colony of the plants at this season is one of the most interesting features of the herbaceous garden.

A circular has been sent out by the Division of Forestry of the Department of Agriculture which calls attention to the recent forms of legislation against forest fires and summarizes the existing acts now in force in the different states. The most complete law is said to be that of Minnesota, which is quoted entire, while the provisions of the Maine law are given with some detail.

It has been often argued that when orchards are sprayed with arsenical poisons while the trees are in blossom a great many bees are killed. The bees are not only useful as honey gatherers, but they are very helpful in fertilizing the flowers. Some experiments made last year at the Ohio Station show conclusively that bees may be killed in large numbers by spraying while the flowers are open, and since this practice is never necessary at that time for the destruction of injurious insects it should be avoided. The trees should be sprayed just before flowering and as soon as the blossoms have fallen, but never while they are in bloom.

The American Architect and Building News speaks appreciatively of the timber tests made by the Forestry Division of the Department of Agriculture, and adds very justly that when engineers, architects and builders are expending hundreds of millions of dollars every year for timber, that the collection of accurate information as to the qualities of our different woods is a matter second only in importance to the preservation of the forests. It is to be hoped that Congress will not be so short-sighted as to adjourn without making an appropriation for continuing the tests which have been going on now for several years. Of course, the value of such work depends largely on the number of experiments made. Only when tests are made in large numbers and under many conditions can we have confidence in the trustworthiness of the accumulated data in regard to the range of strength and other qualities of a given species.

The unusually hot weather during the second week in April, when the thermometer rose to ninety degrees, Fahrenheit, has hurried all spring-flowering shrubs into bloom. Before the hot weather began—that is, up to the 10th of April—no shrubs were in bloom in this vicinity, except occasionally a Daphne Mezereum, and Mr. Joseph Meehan wrote that Prunus Davidiana was flowering in company with the Daphne in Philadelphia. Last week, however, Magnolia stellata had burst into bloom, and is now much past its prime, and M. conspicua and M. Soulangeana were hardly a day behind it. The Forsythias and our native Spice Wood opened about the same time, and with them Cornus mas and the early bush Honeysuckles. Before this paper is read the Peach-trees will be in full bloom as the result of a week of August weather in the middle of April. It will be unusually good fortune if we are not visited by a severe freeze before another paper is published.

Mr. J. H. Hale, President of the Hale Georgia Orchard Company, says, in the current number of the *Fruit Trade Journal*, that from personal examination of the Peach orchards in that state he finds the prospects better even than last year, when Georgia had the best peach crop on record. The frosts that occurred during blooming time this year thinned out the prospective crop considerably, but it is difficult to find anywhere a single tree that is not now carrying a fair crop of fruit, while there are many trees so overloaded that if two-thirds of the fruit would drop off there would be more than enough left for a full crop. In the orchards in which Mr. Hale is directly interested, comprising 100,000 trees, Elberta is stated to be the only variety that is not greatly overloaded. The total crop of the state is estimated at fifty per cent. larger than that of last year, allowing for the first crop of several hundred thousand young trees in the Fort Valley section. The season is fully ten days in advance of last year. Mr. Hale concludes that good Georgia peaches of the Alexander type should be plentiful in northern markets by the 15th of June. New York fruit merchants are anticipating the first Florida peaches before the close of April.

Asparagus is now coming from as far north as Charleston and Norfolk, and the New Jersey crop is looked for any day. Fifty to seventy-five cents a bunch is the price at this time. Beans from Charleston cost twenty-five to thirty cents a quart, and peas from the same section seventy-five cents a half-peck. New white turnips, from Virginia, may be had for ten cents a bunch. Well-grown white squashes from Florida cost ten to fifteen cents each, and southern tomatoes twenty-five cents a pound, the northern hot-house product bringing forty cents. Hot-house cauliflowers cost thirty-five to fifty cents each, lettuce ten to fifteen cents a head, and cucumbers twenty cents each—those from New Orleans filling out the needed supply at slightly lower prices. Mushrooms sell for ninety cents a pound.

Bulletin No. 59 of the Indiana Experiment Station treats of the bacteriosis of Carnations, an almost ever-present disease of these plants. It is easily detected, now that the cause is known and has been studied, but for years the leaves of the plants turned yellow and dried up before the cultivator's eyes, and not until half a dozen years ago was the true cause of the trouble known. Investigation has shown very plainly the presence of a true parasitic bacterium in the leaves of the Carnation; the germ has been separated and cultivated, and other plants have been artificially infected with it, so that there is no question as to the correctness of the diagnosis. This bulletin, which has been prepared by Professors J. C. Arthur and H. L. Bolley, gives a full history of the germ, which is called Bacterium Dianthi, and explains how it enters the plant and how it acts to destroy its host. It seems that no variety of Carnation is entirely exempt from the disease, but weakly varieties like Buttercup, Sunrise and La Purité are most affected. Poorly grown plants more readily succumb than those well grown, and partly starved or stunted plants are especially liable to attack. As it is necessary that there should be sufficient moisture on the leaves to enable the bacteria to move about and enter the pores, and thus gain access to the interior of the leaf, it is plain that keeping the foliage dry will prevent the disease. The trouble is that in this case the red spider might be as fatal as the bacteria. Dry foliage is in a direct line with the requirements of the plant, which is by its structure adapted to a dry atmosphere; its thick, smooth leaves and firm epidermis, and the waxy bloom of its surface, are all devices for conserving moisture. The true treatment, therefore, is to water the ground between the rows of Carnations with a stream of water, beneath a wire netting which is so arranged as to lift up the foliage. Spraying overhead should be practiced only occasionally, and on bright days, when the water will dry off quickly, and the water should contain a small amount of ammoniacal copper carbonate, as the germs cannot live in even a very weak solution of this compound.

The sudden change twelve days ago from persistent cold and rainy weather to midsummer temperature has affected the fruit market here in many respects. Oranges, for example, during last week declined fifty to seventy-five cents a box. Some 1,100 barrels of Jamaica oranges, variously known in the trade as Late Bloom and New Crop, are a part of the regular offerings. The quality of this crop, which appeared early this season, is unusually fine. Besides the usual receipts of Mediterranean oranges, California Navels continue plentiful. Exceptionally large specimens of the latter, sixty-four to the box, desirable mainly for decoration, sell at $3 00 a box wholesale, while those of average size, 112 fruits to the box, and the yet more desirable size, 126 to the box, command $3.50 to $4.00. The hot weather caused an advance of fifty cents a box in the prices of lemons. Grape-fruit is still seen in the collections of retail dealers, but the extremely high prices of the past few months are not maintained by these belated specimens. Two cargoes of new-crop pineapples, altogether 2,500 fruits, reached this port from Cuba during last week, and somewhat larger invoices are expected during this week, the quantity in the corresponding periods of last year having been two or three times as great. The price now ranges from ten to twenty-five cents each, at wholesale, whereas a year ago the same grade brought six to eighteen cents. The first California cherries of the season reached here on April 16th from Vacaville. The variety, Early Purple Guigne, was of fair size, but lacked the deep rich color of fully ripe fruit. They sold at retail for $1.25 a pound. Although strawberries continue to come from Florida, and the first shipments from North Carolina are already in our markets, prices are higher than they were several weeks ago. Last Saturday good strawberries sold for seventy cents a quart box by the crate, and some exceptionally fine fruit brought the remarkable price of ninety cents a quart at wholesale. On Monday seventy-five cents was the lowest price asked for a single box of choice fruit. The probable reason for higher prices for southern strawberries so late in the season is the increasing demand from buyers for hotels and restaurants.